

SEQUENCE LISTING

(1) GENERAL INFORMATION:

- (i) APPLICANT: Chang, Lung-Ji
- (ii) TITLE OF INVENTION: Combination Immunogene Therapy
- (iii) NUMBER OF SEQUENCES: 25
- (iv) CORRESPONDENCE ADDRESS:
 - (A) ADDRESSEE: Medlen & Carroll, LLP
 - (B) STREET: 220 Montgomery Street, Suite 2200
 - (C) CITY: San Francisco
 - (D) STATE: California
 - (E) COUNTRY: United States of America
 - (F) ZIP: 94104
- (v) COMPUTER READABLE FORM:
 - (A) MEDIUM TYPE: Floppy disk
 - (B) COMPUTER: IBM PC compatible
 - (C) OPERATING SYSTEM: PC-DOS/MS-DOS
 - (D) SOFTWARE: PatentIn Release #1.0, Version #1.30
- (vi) CURRENT APPLICATION DATA:
 - (A) APPLICATION NUMBER: US
 - (B) FILING DATE:
 - (C) CLASSIFICATION:
- (viii) ATTORNEY/AGENT INFORMATION:
 - (A) NAME: Ingolia, Diane E.
 - (B) REGISTRATION NUMBER: 40,027
 - (C) REFERENCE/DOCKET NUMBER: CHANG-02687
- (ix) TELECOMMUNICATION INFORMATION:
 - (A) TELEPHONE: (415) 705-8410
 - (B) TELEFAX: (415) 397-8338

(2) INFORMATION FOR SEQ ID NO:1:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 6145 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:

GAATTCTACAC CAGATCACCG AAAACTGTCC TCCAAATGTG TCCCCCTCAC ACTCCCAAAT	60
TCGCGGGCTT CTGCCTCTTA GACCACTCTA CCCTATTCCC CACACTCACC GGAGCCAAAG	120
CCGCGGCCCT TCCGTTTCTT TGCTTTGAA AGACCCCACC CGTAGGTGGC AAGCTAGCTT	180
AAGTAACGCC ACTTTGCAAG GCATGGAAAA ATACATAACT GAGAATAGAA AAGTTCAGAT	240
CAAGGTCAGG AACAAAGAAA CAGCTGAATA CCAAACAGGA TATCTGTGGT AAGCGGTTCC	300

TGCCCCGGCT CAGGGCCAAG AACAGATGAG ACAGCTGAGT GATGGGCCAA ACAGGATATC	360
TGTGGTAAGC AGTTCCCTGCC CGGGCTCGGG GCCAAGAAC AATGGTCCCC AGATGCGGTC	420
CAGCCCTCAG CAGTTCTAG TGAATCATCA GATGTTCCA GGGTGCCCCA AGGACCTGAA	480
AATGACCCTG TACCTTATTT GAACTAACCA ATCAGTTCGC TTCTCGCTTC TGTTCGCGCG	540
CTTCCGCTCT CCGAGCTCAA TAAAAGAGCC CACAACCCCT CACTCGGCGC GCCAGTCTTC	600
CGATAGACTG CGTCGCCCGG GTACCCGTAT TCCAATAAAA GCCTCTTGCT GTTTGCATCC	660
GAATCGTGGT CTCGCTGTT TCCTGGGAGGG TCTCCTCTGA GTGATTGACT ACCCACGACG	720
GGGGTCTTTC ATTTGGGGC TCGTCCGGGA TTTGGAGACC CCTGCCAGG GACCACCGAC	780
CCACCACCGG GAGGTAAGCT GGCCAGCAAC TTATCTGTGT CTGTCCGATT GTCTAGTGTC	840
TATGTTGAT GTTATGCGCC TGCCTCTGTA CTAGTTAGCT AACTAGCTCT GTATCTGGCG	900
GACCCGTGGT GGAACGTGACG AGTTCTGAAC ACCCGGCCGC AACCCCTGGGA GACGTCCCAG	960
GGACTTTGGG GGCGTTTT GTGGCCCGAC CTGAGGAAGG GAGTCGATGT GGAATCCGAC	1020
CCCGTCAGGA TATGTGGTTC TGGTAGGAGA CGAGAACCTA AAACAGTTCC CGCCTCCGTC	1080
TGAATTTTG CTTTCGGTTT GGAACCGAAG CCGCGCGTCT TGTCTGCTGC AGCGCTGCAG	1140
CATCGTTCTG TGTTGTCTCT GTCTGACTGT GTTTCTGTAT TTGTCCTGAAA ATTAGGGCA	1200
GACTGTTACC ACTCCCTAA GTTTGACCTT AGGTCACTGG AAAGATGTCG AGCGGATCGC	1260
TCACAACCAAG TCGGTAGATG TCAAGAACAGAG ACGTTGGTT ACCTCTGCT CTGCAGAATG	1320
GCCAACCTTT AACGTCGGAT GGCGCGAGA CGGCACCTTT AACCGAGACC TCATCACCCA	1380
GGTTAAGATC AAGGTCTTT CACCTGGCCC GCATGGACAC CCAGACCAGG TCCCCTACAT	1440
CGTGACCTGG GAAGCCTTGG CTTTGACCC CCCTCCCTGG GTCAAGCCCT TTGTACACCC	1500
TAAGCCTCCG CCTCCTCTTC CTCCATCCGC CCCGTCTCTC CCCCTTGAAC CTCCTCGTTC	1560
GACCCCGCCT CGATCCTCCC TTTATCCAGC CCTCACTCCT TCTCTAGGCG CCGGAATTCC	1620
GATCTGATCA AGAGACAGGA TGAGGATCGT TTGCGATGAT TGAACAAGAT GGATTGCACG	1680
CAGGTTCTCC GGCGCTTGG GTGGAGAGGC TATTGGCTA TGACTGGCA CAACAGACAA	1740
TCGGCTGCTC TGATGCCGCC GTGTTCCGGC TGTCAGCGCA GGGCGCCCG GTTCTTTTG	1800
TCAAGACCGA CCTGTCCGGT GCCCTGAATG AACTGCAGGA CGAGGCAGCG CGGCTATCGT	1860
GGCTGGCCAC GACGGGCAGT CCTTGCGCAG CTGTGCTCGA CGTTGTCACT GAAGCGGGAA	1920
GGGACTGGCT GCTATTGGGC GAAGTGCAGG GGCAGGATCT CCTGTCATCT CACCTTGCTC	1980
CTGCCGAGAA AGTATCCATC ATGGCTGATG CAATGCCGCG GCTGCATACG CTTGATCCGG	2040
CTACCTGCC ATTGACCAAC CAAGCGAAAC ATCGCATCGA GCGAGCACGT ACTCGGATGG	2100

AAGCCGGTCT	TGTGATCATCG	GATGATCTGG	ACGAAGAGCA	TCAGGGGCTC	GCGCCAGCCG	2160
AACTGTTCGC	CAGGCTCAAG	GCGCGCATGC	CCGACGGCGA	GGATCTCGTC	GTGACCCATG	2220
GCGATGCCTG	CTTGCCGAAT	ATCATGGTGG	AAAATGGCCG	CTTTTCTGGA	TTCATCGACT	2280
GTGGCCGGCT	GGGTGTGGCG	GACCGCTATC	AGGACATAGC	GTTGGCTACC	CGTGATATTG	2340
CTGAAGAGCT	TGGCGGCGAA	TGGGCTGACC	GCTTCCTCGT	GCTTTACGGT	ATCGCCGCTC	2400
CCGATTCGCA	GCGCATCGCC	TTCTATCGCC	TTCTTGACGA	GTTCTTCTGA	GCGGGACTCT	2460
GGGGTTCGAA	ATGACCGACC	AAGCGACGCC	CAACCTGCCA	TCACGAGATT	TCGATTCCAC	2520
CGCCGCCCTTC	TATGAAAGGT	TGGGCTTCGG	AATCGTTTC	CGGGACGCCG	GCTGGATGAT	2580
CCTCCAGCGC	GGGGATCTCA	TGCTGGAGTT	CTTCGCCCAC	CCCGGGCTCG	ATCCCCTCGC	2640
GAGTTGGTTC	AGCTGCTGCC	TGAGGCTGGA	CGACCTCGCG	GAGTTCTACC	GGCAGTGCAA	2700
ATCCGTCGGC	ATCCAGGAAA	CCAGCAGCGG	CTATCCGCGC	ATCCATGCC	CCGAACGTGCA	2760
GGAGTGGGGA	GGCACGATGG	CCGCTTGTT	CGACCCGGAC	GGGACGCTCC	TGCGCCTGAT	2820
ACAGAACGAA	TTGCTTGCAG	GCATCTCATG	AGTGTGTCTT	CCCGTTTCC	GCCTGAGGTC	2880
ACTGCGTGGA	TGGAGCGCTG	GCGCCTGCTG	CGCGACGGCG	AGCTGCTCAC	CACCCACTCG	2940
AGGGCGTGCA	GCGCTGCAGA	GGCCGAGTGC	AGAACTGCTC	CAAAGGGACC	TCAAGGCTTT	3000
CCGAGGGACA	CTAGGCTGAC	TCCATCGAGC	CAGTGTAGAG	ATAAGCTTAT	CGATTAGTCC	3060
AATTGTTAA	AGACAGGATA	TCAGTGGTCC	AGGCTCTAGT	TTTGACTCAA	CAATATCACC	3120
AGCTGAAGCC	TATAGAGTAC	GAGCCATAGA	TAAAATAAAA	GATTTTATTT	AGTCTCCAGA	3180
AAAAGGGGGG	AATGAAAGAC	CCCACCTGTA	GGTTTGGCAA	GCTAGCTTAA	GTAACGCCAT	3240
TTTGCAAGGC	ATGGAAAAAT	ACATAACTGA	GAATAGAGAA	GTTCAGATCA	AGGTCAGGAA	3300
CAGATGGAAC	AGCTGAATAT	GGGCCAAACA	GGATATCTGT	GGTAAGCAGT	TCCTGCCCG	3360
GCTCAGGGCC	AAGAACAGAT	GGAACAGCTG	AATATGGGCC	AAACAGGATA	TCTGTGGTAA	3420
GCAGTTCCCTG	CCCCGGCTCA	GGGCCAAGAA	CAGATGGTCC	CCAGATGCGG	TCCAGCCCTC	3480
AGCAGTTTCT	AGAGAACCAT	CAGATGTTTC	CAGGGTGCCC	CAAGGACCTG	AAATGACCCCT	3540
GTGCCATTATT	TGAACTAACC	AATCAGTTCG	CTTCTCGCTT	CTGTTCGCGC	GCTTCTGCTC	3600
CCCGAGCTCA	ATAAAAGAGC	CCACAACCCC	TCACTCGGGG	CGCCAGTCCT	CCGATTGACT	3660
GAGTCGCCCG	GGTACCCGTG	TATCCAATAA	ACCCCTTTGC	AGTTGCATCC	GACTTGTGGT	3720
CTCGCTGTT	CTTGGGAGGG	TCTCCTCTGA	GTGATTGACT	ACCCGTCAGC	GGGGGTCTTT	3780
CATTTGGGGG	CTCGTCCGGG	ATCGGGAGAC	CCCTGCCAG	GGACCACCGA	CCCACCAACCG	3840
GGAGGTAAGC	TGGCTGCCTC	GCGCGTTCG	GTGATGACGG	TGAAAACCTC	TGACACATGC	3900

AGCTCCCGGA GACGGTCACA GCTTGTCTGT AAGCGGATGC CGGGAGCAGA CAAGCCCGTC	3960
AGGGCGCGTC AGCGGGTGTGTT GGCGGGTGTC GGGGCGCAGC CATGACCCAG TCACGTAGCG	4020
ATAGCGGAGT GTATACTGGC TTAACTATGC GGCATCAGAG CAGATTGTAC TGAGAGTGCA	4080
CCATATGCGG TGTGAAATAC CGCACAGATG CGTAAGGAGA AAATACCGCA TCAGGCGCTC	4140
TTCCGCTTCC TCGCTCACTG ACTCGCTGCG CTCGGTCGTT CGGCTGCGGC GAGCGGTATC	4200
AGCTCACTCA AAGGCGGTAA TACGGTTATC CACAGAATCA GGGGATAACG CAGGAAAGAA	4260
CATGTGAGCA AAAGGCCAGC AAAAGGCCAG GAACCGTAAA AAGGCCGCGT TGCTGGCGTT	4320
TTTCCATAGG CTCCGCCCGC CTGACGAGCA TCACAAAAAT CGACGCTCAA GTCAGAGGTG	4380
GCGAAACCCG ACAGGACTAT AAAGATACCA GGCGTTCCC CCTGGAAGCT CCCTCGTGCG	4440
CTCTCCTGTT CCGACCCTGC CGCTTACCGG ATACCTGTCC GCCTTCTCC CTTCGGGAAAG	4500
CGTGGCGCTT TCTCATAGCT CACGCTGTAG GTATCTCAGT TCGGGTAGG TCGTTCGCTC	4560
CAAGCTGGC TGTGTGCACG AACCCCCCGT TCAGCCCGAC CGCTGCGCCT TATCCGGTAA	4620
CTATCGTCTT GAGTCCAACC CGGTAAGACA CGACTTATCG CCACTGGCAG CAGCCACTGG	4680
TAACAGGATT AGCAGAGCGA GGTATGTAGG CGGTGCTACA GAGTTCTTGA AGTGGTGGCC	4740
TAACTACGGC TACACTAGAA GGACAGTATT TGGTATCTGC GCTCTGCTGA AGCCAGTTAC	4800
CTTCGGAAAA AGAGTTGGTA GCTCTTGATC CGGCAAACAA ACCACCGCTG GTAGCGGTGG	4860
TTTTTTTGTT TGCAAGCAGC AGATTACGCG CAGAAAAAAA GGATCTCAAG AAGATCCTTT	4920
GATCTTTCT ACGGGGTCTG ACGCTCAGTG GAACGAAAAC TCACGTTAAG GGATTTGGT	4980
CATGAGATTA TCAAAAGGA TCTTCACCTA GATCCTTTA ATTAAAAAT GAAGTTTAA	5040
ATCAATCTAA AGTATATATG AGTAAACTTG GTCTGACAGT TACCAATGCT TAATCAGTGA	5100
GGCACCTATC TCAGCGATCT GTCTATTTCG TTCATCCATA GTTGCCTGAC TCCCCGTCGT	5160
GTAGATAACT ACGATACGGG AGGGCTTACC ATCTGGCCCC AGTGCTGCAA TGATACCGCG	5220
AGACCCACGC TCACCGGCTC CAGATTATC AGCAATAAAC CAGCCAGCCG GAAGGGCCGA	5280
GCGCAGAAGT GGTCCCTGCAA CTTTATCCGC CTCCATCCAG TCTATTAATT GTTGCCGGGA	5340
AGCTAGAGTA AGTAGTTCGC CAGTTAATAG TTTGCGAAC GTTGGTGCCTA TTGCTGCAGG	5400
CATCGTGGTG TCACGCTCGT CGTTGGTAT GGCTTCATTC AGCTCCGGTT CCCAACGATC	5460
AAGGCGAGTT ACATGATCCC CCATGTTGTG CAAAAAAAGCG GTTAGCTCCT TCGGTCCCTCC	5520
GATCGTTGTC AGAAGTAAGT TGGCCGCAGT GTTATCACTC ATGGTTATGG CAGCACTGCA	5580
TAATTCTCTT ACTGTCATGC CATCCGTAAG ATGCTTTCT GTGACTGGTG AGTACTAAC	5640
CAAGTCATTC TGAGAATAGT GTATGCGGCG ACCGAGTTGC TCTTGCCCCGG CGTCAACACG	5700

GGATAATACC GCGCCACATA GCAGAACTTT AAAAGTGCTC ATCATTGGAA AACGTTCTTC	5760
GGGGCGAAAA CTCTCAAGGA TCTTACCGCT GTTGAGATCC AGTCGATGT AACCCACTCG	5820
TGCACCCAAC TGATCTTCAG CATCTTTAC TTTCACCAGC GTTTCTGGGT GAGCAAAAC	5880
AGGAAGGCAA AATGCCGCAA AAAAGGGAAT AAGGGCGACA CGGAAATGTT GAATACTCAT	5940
ACTCTTCCTT TTTCAATATT ATTGAAGCAT TTATCAGGGT TATTGTCTCA TGAGCGGATA	6000
CATATTTGAA TGTATTTAGA AAAATAAACCA AATAGGGGTT CCGCGCACAT TTCCCCGAAA	6060
AGTGCCACCT GACGTCTAAG AAACCATTAT TATCATGACA TTAACCTATA AAAATAGGCG	6120
TATCACGAGG CCCTTTCGTC TTCAA	6145

(2) INFORMATION FOR SEQ ID NO:2:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 67 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

- (ii) MOLECULE TYPE: other nucleic acid
 - (A) DESCRIPTION: /desc = "DNA"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:

GATCTAAGCT TGCAGCCGCA GATCTCGAGC CATGGATCCT AGGCCTGATC ACGCGTCGAC	60
TCGCGAT	67

(2) INFORMATION FOR SEQ ID NO:3:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 65 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

- (ii) MOLECULE TYPE: other nucleic acid
 - (A) DESCRIPTION: /desc = "DNA"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:3:

CGATCGCGAG TCGACGCGTG ATCAGGCCTA GGATCCATGG CTCGAGATCT GCGGCCGCAA	60
GCTTA	65

(2) INFORMATION FOR SEQ ID NO:4:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 33 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

- (ii) MOLECULE TYPE: other nucleic acid

(A) DESCRIPTION: /desc = "DNA"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:4:

AAGCTTGATC ACCACCATGA TTGAACAAGA TGG 33

(2) INFORMATION FOR SEQ ID NO:5:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 34 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

(A) DESCRIPTION: /desc = "DNA"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:5:

CCGGATCCGT CGACCCCCAGA GTCCCCGCTCA GAAG 34

(2) INFORMATION FOR SEQ ID NO:6:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 35 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

(A) DESCRIPTION: /desc = "DNA"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:6:

CCCGGGAAAGC TTCCACCATG TGGCTGCAGA GCCTG 35

(2) INFORMATION FOR SEQ ID NO:7:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 29 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

(A) DESCRIPTION: /desc = "DNA"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:7:

AATGGATCCT ATCACTCCTG GACTGGCTC 29

(2) INFORMATION FOR SEQ ID NO:8:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 435 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid
 (A) DESCRIPTION: /desc = "DNA"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:8:

ATGTGGCTGC AGAGCCTGCT GCTCTTGGGC ACTGTGGCCT GCAGCATCTC TGCACCCGCC	60
CGCTCGCCCA GCCCCAGCAC GCAGCCCTGG GAGCATGTGA ATGCCATCCA GGAGGCCCGG	120
CGTCTCCTGA ACCTGAGTAG AGACACTGCT GCTGAGATGA ATGAAACAGT AGAAGTCATC	180
TCAGAAATGT TTGACCTCCA GGAGCCGACC TGCCTACAGA CCCGCCTGGA GCTGTACAAG	240
CAGGGCCTGC GGGGCAGCCT CACCAAGCTC AAGGGCCCCT TGACCATGAT GGCCAGCCAC	300
TACAAGCAGC ACTGCCCTCC AACCCCCGAA ACTTCCTGTG CAACCCAGAT TATCACCTTT	360
GAAAGTTCA AAGAGAACCT GAAGGACTTT CTGCTTGTCA TCCCCTTGA CTGCTGGGAG	420
CCAGTCCAGG AGTGA	435

(2) INFORMATION FOR SEQ ID NO:9:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 30 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid
 (A) DESCRIPTION: /desc = "DNA"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:9:

TGTGGATCCA CCATGGGACT GAGTAACATT	30
----------------------------------	----

(2) INFORMATION FOR SEQ ID NO:10:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 35 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid
 (A) DESCRIPTION: /desc = "DNA"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:10:

TTTGGATCCT TAAAAACATG TATCACTTT GT CGC	35
--	----

(2) INFORMATION FOR SEQ ID NO:11:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 972 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid
 (A) DESCRIPTION: /desc = "DNA"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:11:

ATGGGACTGA	GTAACATTCT	CTTTGTGATG	GCCTTCCTGC	TCTCTGGTGC	TGCTCCTCTG	60
AAGATTCAAG	CTTATTCAA	TGAGACTGCA	GACCTGCCAT	GCCAATTGCG	AAACTCTCAA	120
AACCAAAGCC	TGAGTGAGCT	AGTAGTATTT	TGGCAGGACC	AGGAAAACCTT	GGTTCTGAAT	180
GAGGTATACT	TAGGCAAAGA	GAAATTGAC	AGTGTTCATT	CCAAGTATAT	GGGCCGCACA	240
AGTTTGATT	CGGACAGTTG	GACCCTGAGA	CTTCACAATC	TTCAGATCAA	GGACAAGGGC	300
TTGTATCAAT	GTATCATCCA	TCACAAAAAG	CCCACAGGAA	TGATTGCGAT	CCACCCAGATG	360
AATTCTGAAC	TGTCAGTGCT	TGCTAACCTTC	AGTCAACCTG	AAATAGTACC	AATTTCTAAT	420
ATAACAGAAA	ATGTGTACAT	AAATTTGACC	TGCTCATCTA	TACACGGTTA	CCCAGAACCT	480
AAGAAGATGA	GTGTTTGCT	AAGAACCAAG	AATTCAACTA	TCGAGTATGA	TGGTATTATG	540
CAGAAATCTC	AAGATAATGT	CACAGAACTG	TACGACGTTT	CCATCAGCTT	GTCTGTTCA	600
TTCCCTGATG	TTACGAGCAA	TATGACCATC	TTCTGTATTC	TGGAAACTGA	CAAGACCGGG	660
CTTTTATCTT	CACCTTCTC	TATAGAGCTT	GAGGACCCTC	AGCCTCCCCC	AGACCACATT	720
CCTTGGATTA	CAGCTGTACT	TCCAACAGTT	ATTATATGTG	TGATGGTTTT	CTGTCTAATT	780
CTATGGAAAT	GGAAGAAGAA	GAAGCGGCCT	CGCAACTCTT	ATAAATGTGG	AACCAACACA	840
ATGGAGAGGG	AAGAGAGTGA	ACAGACCAAG	AAAAGAGAAA	AAATCCATAT	ACCTGAAAGA	900
TCTGATGAAG	CCCAGCGTGT	TTTAAAGT	TCGAAGACAT	CTTCATGCGA	CAAAAGTGAT	960
ACATGTTTT AA						972

(2) INFORMATION FOR SEQ ID NO:12:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 29 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid
 (A) DESCRIPTION: /desc = "DNA"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:12:

AAAAGCTTGG ATCCACCATG AGTAAAGGA

29

(2) INFORMATION FOR SEQ ID NO:13:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 30 base pairs
 (B) TYPE: nucleic acid

(C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid
 (A) DESCRIPTION: /desc = "DNA"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:13:

AATCTAGATT ACTATTTGTA TAGTCATCC

30

(2) INFORMATION FOR SEQ ID NO:14:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 1451 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:14:

AAGCTTTGGA GCTAAGCCAG CAATGGTAGA GGGAAAGATTG TGCACTCCC TTCCAGGCCG	60
CCTCCCCGTC ACCACCCCCC CCAACCCGCC CCGACCGGAG CTGAGAGTAA TTCATACAAA	120
AGGACTCGCC CCTGCCTTGG GGAATCCCAG GGACCGTCGT TAAACTCCCA CTAACGTAGA	180
ACCCAGAGAT CGCTGCGTTC CCGCCCCCTC ACCCGCCCGC TCTCGTCATC ACTGAGGTGG	240
AGAAGAGCCA TGCAGTGAGGC TCCGGTGCCTC GTCAGTGGGC AGAGCGCACA TCGCCCACAG	300
TCCCCGAGAA GTTGGGGGGA GGGGTCGGCA ATTGAACCGG TGCCTAGAGA AGGTGGCGCG	360
GGGTAAACTG GGAAAGTGAT GTCGTGTACT GGCTCCGCCT TTTTCCCGAG GGTGGGGAG	420
AACCCGTATA TAAGTGCAGT AGTCGCCGTG AACGTTCTTT TTTCGCAACGG GTTGTGCCGCC	480
AGAACACAGG TAAGTGCCGT GTGTGGTTCC CGCGGGCCTG GCCTCTTAC GGGTTATGGC	540
CCTTGCCTGC CTTGAATTAC TTCCACGCCCTGGCTGCAG TACGTGATTC TTGATCCCGA	600
GCTTCGGGTT GGAAGTGGGT GGGAGAGTTC GAGGCCTTGC GCTTAAGGAG CCCCTTCGCC	660
TCGTGCTTGA GTTGAGGCCT GGCCTGGCG CTGGGGCCCC CGCGTGCAGA TCTGGTGGCA	720
CCTTCGCGCC TGTCTCGCTG CTTTCGATAA GTCTCTAGCC ATTTAAAATT TTTGATGACC	780
TGCTGCGACG CTTTTTTCTT GGCAAGATAG TCTTGAAAT GCGGGCCAAG ATCTGCACAC	840
TGGTATTCG GTTTTGAGGG CCGCGGGCGG CGACGGGGCC CGTGCCTCCC AGCGCACATG	900
TTCGGCGAGG CGGGGCCTGC GAGCGCGGCC ACCGAGAACG GGACGGGGGT AGTCTCAAGC	960
TGGCCGGCCT GCTCTGGTGC CTGGCCTCGC GCCGCCGTGT ATCGCCCCGC CCTGGCGGCC	1020
AAGGCTGGCC CGGTGGCAC CAGTTGCGTG AGCGGAAAGA TGGCCGCTTC CCGGCCCTGC	1080
TGCAGGGAGC TCAAAATGGA GGACGCGGCG CTCGGGAGAG CGGGCGGGTG AGTCACCCAC	1140

ACAAAGGAAA AGGGCCTTTC CGTCCTCAGC CGTCGCTTCA TGTGACTCCA CGGAGTACCG	1200
GGCGCCGTCC AGGCACCTCG ATTAGTTCTC GAGCTTTGG AGTACGTCGT CTTTAGGTTG	1260
GGGGGAGGGG TTTTATGCGA TGGAGTTCC CCACACTGAG TGGGTGGAGA CTGAAGTTAG	1320
GCCAGCTTGG CACTTGATGT AATTCTCCTT GGAATTGCC CTTTTGAGT TTGGATCTTG	1380
GTTCATTCTC AAGCCTCAGA CAGTGGTTCA AAGTTTTT CTTCCATTTC AGGTGTCGTG	1440
AAAACCTCTAG A	1451

(2) INFORMATION FOR SEQ ID NO:15:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 24 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

- (ii) MOLECULE TYPE: other nucleic acid
 - (A) DESCRIPTION: /desc = "DNA"

- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:15:

AAGCTTTGGA GCTAAGCCAG CAAT	24
----------------------------	----

(2) INFORMATION FOR SEQ ID NO:16:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 23 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

- (ii) MOLECULE TYPE: other nucleic acid
 - (A) DESCRIPTION: /desc = "DNA"

- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:16:

TCTAGAGTTT TCACGACACC TGA	23
---------------------------	----

(2) INFORMATION FOR SEQ ID NO:17:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 28 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

- (ii) MOLECULE TYPE: other nucleic acid
 - (A) DESCRIPTION: /desc = "DNA"

- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:17:

TCTAGAGCGG CCGCGGAGGC CGAATTG	28
-------------------------------	----

(2) INFORMATION FOR SEQ ID NO:18:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 36 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

- (A) DESCRIPTION: /desc = "DNA"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:18:

GATCCGAATT CGGCCTCCGC GGCGCCTCTA GATGCA

36

(2) INFORMATION FOR SEQ ID NO:19:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 40 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

- (A) DESCRIPTION: /desc = "DNA"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:19:

GAAGATCTGC GGCGGCCACC ATGTGGCCCC CTGGGTCA

40

(2) INFORMATION FOR SEQ ID NO:20:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 29 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

- (A) DESCRIPTION: /desc = "DNA"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:20:

CCTCTCGAGT TAGGAAGCAT TCAGATAGC

29

(2) INFORMATION FOR SEQ ID NO:21:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 762 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid

- (A) DESCRIPTION: /desc = "DNA"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:21:

ATGTGGCCCC CTGGGTCA CTCAGCCA CCGCCCTCAC CTGCCGCGGC CACAGGTCTG

60

CATCCAGCGG CTCGCCCTGT GTCCCTGCAG TGCCGGCTCA GCATGTGTCC AGCGCGCAGC

120

CTCCTCCTTG TCGCTACCCT GGTCCCTCCTG GACCACCTCA GTTTGCCAG AAACCTCCCC	180
GTGGCCACTC CAGACCCAGG AATGTTCCA TGCCCTCACC ACTCCCAAAA CCTGCTGAGG	240
GCCGTCAGCA ACATGCTCCA GAAGGCCAGA CAAACTCTAG AATTTTACCC TTGCACCTCT	300
GAAGAGATTG ATCATGAAGA TATCACAAAA GATAAAACCA GCACAGTGGA GGCCTGTTA	360
CCATTGGAAT TAACCAAGAA TGAGAGTTGC CTAAATTCCA GAGAGACCTC TTTCATAACT	420
AATGGGAGTT GCCTGGCCTC CAGAAAGACC TCTTTATGA TGGCCCTGTG CCTTAGTAGT	480
ATTTATGAAG ACTTGAAGAT GTACCAGGTG GAGTTCAAGA CCATGAATGC AAAGCTTCTG	540
ATGGATCCTA AGAGGCAGAT CTTTCTAGAT CAAAACATGC TGGCAGTTAT TGATGAGCTG	600
ATGCAGGCC C TGAATTCAA CAGTGAGACT GTGCCACAAA AATCCTCCCT TGAAGAACCG	660
GATTTTATA AAACTAAAAT CAAGCTCTGC ATACTTCTTC ATGCTTCAG AATTGGGCA	720
GTGACTATTG ATAGAGTGAT GAGCTATCTG AATGCTTCCT AA	762

(2) INFORMATION FOR SEQ ID NO:22:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 34 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

- (ii) MOLECULE TYPE: other nucleic acid
 - (A) DESCRIPTION: /desc = "DNA"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:22:

AAAGAGCTCC ACCATGTGTC ACCAGCAGTT GGTC

34

(2) INFORMATION FOR SEQ ID NO:23:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 28 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

- (ii) MOLECULE TYPE: other nucleic acid
 - (A) DESCRIPTION: /desc = "DNA"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:23:

AAGGATCCTA ACTGCAGGGC ACAGATGC

28

(2) INFORMATION FOR SEQ ID NO:24:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 987 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid
 (A) DESCRIPTION: /desc = "DNA"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:24:

ATGTGTCACC AGCAGTTGGT CATCTCTTGG TTTTCCCTGG TTTTTCTGGC ATCTCCCCTC	60
GTCGCCATAT GGGAACTGAA GAAAGATGTT TATGTCGTAG AATTGGATTG GTATCCGGAT	120
GCCCCCTGGAG AAATGGTGGT CCTCACCTGT GACACCCCTG AAGAAGATGG TATCACCTGG	180
ACCTTGGACC AGAGCAGTGA GGTCTTAGGC TCTGGAAAAA CCCTGACCAT CCAAGTCAA	240
GAGTTGGAG ATGCTGGCCA GTACACCTGT CACAAAGGAG GCGAGGTTCT AAGCCATTG	300
CTCCTGCTGC TTCACAAAAA GGAAGATGGA ATTGGTCCA CTGATATTAA AAAGGACCAG	360
AAAGAACCCA AAAATAAGAC CTTTCTAAGA TGCGAGGCCA AGAATTATTC TGGACGTTTC	420
ACCTGCTGGT GGCTGACGAC AATCACTACT GATTTGACAT TCAGTGTCAA AAGCAGCAGA	480
GGCTCTTCTG ACCCCCCAAGG GGTGACGTGC GGAGCTGCTA CACTCTCTGC AGAGAGAGTC	540
AGAGGGGACA ACAAGGAGTA TGAGTACTCA GTGGAGTGCC AGGAGGACAG TGCCTGCCA	600
GCTGCTGAGG AGAGTCTGCC CATTGAGGTC ATGGTGGATG CCGTTCACAA GCTCAAGTAT	660
GAAAATACA CCAGCAGCTT CTTCATCAGG GACATCATCA AACCTGACCC ACCAACAAAC	720
TTGCAGCTGA AGCCATTAAA GAATTCTCGG CAGGTGGAGG TCAGCTGGGA GTACCCTGAC	780
ACCTGGAGTA CTCCACATTC CTACTTCTCC CTGACATTCT GCGTTCAGGT CCAGGGCAAG	840
AGCAAGAGAG AAAAGAAAGA TAGAGTCTTC ACCGACAAGA CCTCAGGCCAC GGTCATCTGC	900
CGCAAAATG CCAGCATTAG CGTGCAGGCC CAGGACCGCT ACTATAGCTC ATCTTGGAGC	960
GAATGGGCAT CTGTGCCCTG CAGTTAG	987

(2) INFORMATION FOR SEQ ID NO:25:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 2097 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: other nucleic acid
 (A) DESCRIPTION: /desc = "DNA"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:25:

ATGAGGCTCG CCGTGGGAGC CCTGCTGGTC TGCGCCGTCC TGGGGCTGTG TCTGGCTGTC	60
CCTGATAAAA CTGTGAGATG GTGTGCAGTG TCGGAGCATG AGGCCACTAA GTGCCAGAGT	120
TTCCCGCGACC ATATGAAAAG CGTCATTCCA TCCGATGGTC CCAGTGTGTC TTGTGTGAAG	180
AAAGCCTCCT ACCTTGATTG CATCAGGGCC ATTGCGGCAA ACGAAGCGGA TGCTGTGACA	240

CTGGATGCAG GTTTGGTGT A TGATGCTTAC TTGGCTCCA ATAACCTGAA GCCTGTGGT G	300
GCAGAGTTCT ATGGGTCAA AGAGGATCCA CAGACTTCT ATTATGCTGT TGCTGTGGT G	360
AAGAAGGATA GTGGCTTCCA GATGAACCAG CTTCGAGGCA AGAACGCTG CCACACGGGT	420
CTAGGCAGGT CCGCTGGGT GAACATCCCC ATAGGCTTAC TTTACTGTGA CTTACCTGAG	480
CCACGTAAAC CTCTTGAGAA AGCAGTGGCC AATTCTTCT CGGGCAGCTG TGCCCCTTGT	540
GCGGATGGGA CGGACTTCCC CCAGCTGTGT CAACTGTGTC CAGGGTGTGG CTGCTCCACC	600
CTTAACCAAT ACTTCGGCTA CTCGGGAGCC TTCAAGTGTG TGAGGATGG TGCTGGGAT	660
GTGGCCTTTG TCAAGCACTC GACTATATTG GAGAACTTGG CAAACAAGGC TGACAGGGAC	720
CAGTATGAGC TGCTTGCGCT AGACAAACACC CGGAAGCCGG TAGATGAATA CAAGGACTGC	780
CACTTGGCCC AGGTCCCTTC TCATACCGTC GTGGCCCGAA GTATGGCGG CAAGGAGGAC	840
TTGATCTGGG AGCTTCTCAA CCAGGCCAG GAACATTTG GCAAAGACAA ATCAAAAGAA	900
TTCCAACATAT TCAGCTCTCC TCATGGGAAG GACCTGCTGT TTAAGGACTC TGCCCACGGG	960
TTTTAAAAG TCCCCCAAG GATGGATGCC AAGATGTACC TGGGCTATGA GTATGTCACT	1020
GCCATCCGGA ATCTACGGGA AGGCACATGC CCAGAAGCCC CAACAGATGA ATGCAAGCCT	1080
GTGAAGTGGT GTGCGCTGAG CCACCACGAG AGGCTCAAGT GTGATGAGTG GAGTGTAAAC	1140
AGTGTAGGGA AAATAGAGTG TGTATCAGCA GAGACCACCG AAGACTGCAT CGCCAAGATC	1200
ATGAATGGAG AAGCTGATGC CATGAGCTTG GATGGAGGGT TTGCTACAT AGCGGGCAAG	1260
TGTGGCTGG TGCCTGTCTT GGCAGAAAAC TACAATAAGA GCGATAATTG TGAGGATACA	1320
CCAGAGGCAG GGTATTTGC TGTAGCAGTG GTGAAGAAAT CAGCTTCTGA CCTCACCTGG	1380
GACAATCTGA AAGGCAAGAA GTCCTGCCAT ACGGCAGTTG GCAGAACCGC TGGCTGGAAC	1440
ATCCCCATGG GCCTGCTCTA CAATAAGATC AACCACTGCA GATTGATGA ATTTTCAGT	1500
GAAGGTTGTG CCCCTGGTC TAAGAAAGAC TCCAGTCTCT GTAAGCTGTG TATGGGCTCA	1560
GGCCTAAACC TGTGTGAACC CAACAAACAA GAGGGATACT ACGGCTACAC AGGCGCTTTC	1620
AGGTGTCTGG TTGAGAAGGG AGATGTGGCC TTTGTGAAAC ACCAGACTGT CCCACAGAAC	1680
ACTGGGGGAA AAAACCTGA TCCATGGCT AAGAATCTGA ATGAAAAAGA CTATGAGTTG	1740
CTGTGCCTTG ATGGTACCAAG GAAACCTGTG GAGGAGTATG CGAACTGCCA CCTGGCCAGA	1800
GCCCCGAATC ACGCTGTGGT CACACGGAAA GATAAGGAAG CTTGCGTCCA CAAGATATTA	1860
CGTCAACAGC AGCACCTATT TGGAAGCAAC GTAACTGACT GCTCGGGCAA CTTTGTTTG	1920
TTCCGGTCGG AAACCAAGGA CCTTCTGTTC AGAGATGACA CAGTATGTTT GGCAAACATT	1980
CATGACAGAA ACACATATGA AAAATACTTA GGAGAAGAAT ATGTCAAGGC TGTTGGTAAC	2040

15

CNG-100D1

CTGAGAAAAT GCTCCACCTC ATCACTCCTG GAAGCCTGCA CTTTCCGTAG ACCTTAA

2097